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(54) Title: SKIN CARE COMPOSITIONS (57) Abstract Disclosed is a skin care composition having a moisturizing agent, a polyoxyalkylene glycol of 2 to about 3 carbons having an average molecular weight of from about 5,000 to about 500,000, a water-soluble polymeric thickening agent, a nonionic surfactant, and a carrier, wherein the total amount of surfactant in the composition is less than 5 % of the composition.		

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SKIN CARE COMPOSITIONS

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FIELD

The present invention relates to a skin care composition. In particular, it relates to a skin care composition for moisturizing the skin.

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BACKGROUND

Many personal care products currently available to consumers are directed primarily to improving the health and/or physical appearance of the skin. Among these skin care products, many are directed to delaying, minimizing or even eliminating skin wrinkling and other histological changes typically associated with skin aging or environmental damage to human skin.

Skin is subject to insults by many extrinsic and intrinsic factors. Extrinsic factors include ultraviolet radiation (e.g., from sun exposure), environmental pollution, wind, heat, low humidity, harsh surfactants, abrasives, and the like. Intrinsic factors include chronological aging and other biochemical changes from within the skin. Whether extrinsic or intrinsic, these factors result in visible signs of skin aging and environmental damage such as wrinkling and other forms of roughness (including increased pore size, flaking and skin lines), and other histological changes associated with skin aging or damage. Signs of skin aging include, but are not limited to, all outward visibly and tactilely perceptible manifestations as well as any other macro or micro effects due to skin aging.

In order to maintain or return skin to a healthy and/or youthful state, the skin is typically treated with a moisturizing agent. Known moisturizing agents include, e.g., glycol or glycerin. Increasing the level of moisturizing agent applied to the skin typically provides improved moisturization of the skin.

Popular forms of skin care products employed for skin moisturization include clear lotions, milk lotions, and essences. Such compositions typically have a high water content. Additionally, consumers expect such high water content compositions to have a non-greasy feeling. Unfortunately, as the percentage of moisturizing agent is increased in such compositions, these

compositions tend to impart a greasy feeling and result in poor distribution/spreading of the moisturizing agent to the skin.

Based on the foregoing, there is a need for a skin care composition for improving one's skin condition by maximizing the amount of moisturizing agent in the composition and/or improving the deposition/spreadability of the moisturizing agent to the skin, yet continue to impart a non-greasy feeling to the user.

SUMMARY

The present invention is directed to a skin care composition having a moisturizing agent, a polyoxyalkylene glycol of 2 to about 3 carbons having an average molecular weight of from about 5,000 to about 500,000, a water-soluble polymeric thickening agent, a nonionic surfactant, and a carrier. The total amount of surfactant in the composition is less than 5% of the composition.

These and other features, aspects, and advantages of the present invention will become better understood from a reading of the following description, and appended claims.

DETAILED DESCRIPTION

While the specification concludes with claims particularly pointing out and distinctly claiming the invention, it is believed that the present invention will be better understood from the following description.

All percentages are by weight of total composition unless specifically stated otherwise.

All ratios are weight ratios unless specifically stated otherwise.

All cited references are incorporated herein by reference in their entireties. Citation of any reference is not an admission regarding any determination as to its availability as prior art to the claimed invention.

Herein, "comprising" means that other steps and other ingredients which do not affect the end result can be added. This term encompasses the terms "consisting of" and "consisting essentially of".

Herein, "topical application", means to apply or spread the compositions onto the surface of the skin.

Herein, "dermatologically-acceptable," means that the compositions or components thereof so described are suitable for use in contact with human skin

without undue toxicity, incompatibility, instability, irritation allergic response, and the like, commensurate with a reasonable benefit/risk ratio.

Herein, "cosmetically-acceptable carrier," means one or more compatible dermatologically-acceptable solid or liquid filler diluents or encapsulating substances.

Herein, "safe and effective amount," means an amount of a compound or composition sufficient to significantly induce a positive benefit, preferably a positive skin appearance or feel benefit, including independently the benefits disclosed herein, but low enough to avoid serious side effects, *i.e.*, to provide a reasonable benefit to risk ratio, within the scope of sound judgment of the skilled artisan.

The composition of the present invention includes a moisturizing agent, a polyoxyalkylene glycol, a thickening agent, a nonionic surfactant, and a carrier. Preferably, the composition is a dermatologically-acceptable topical composition; more preferably a cosmetic composition.

A. Moisturizing Agent

The composition of the present invention contains a safe and effective amount of a moisturizing agent. Preferably, the moisturizing agent is hydrophilic and has a high water holding capacity. Herein, "water holding capacity," means components and/or materials which facilitate water/moisture retention in the skin.

The moisturizing agent useful herein includes any component which can be typically formulated into skin lotions as a moisturizer and/or humectant. Preferably, the moisturizing agent useful herein is selected from polyhydric alcohols; glycolic acid and glycolate salts; lactic acid and lactate salts (*e.g.* sodium lactate); aloe vera in any of its variety of forms (*e.g.*, aloe vera gel); sugar and starch derivatives (*e.g.*, alkoxylated glucose); amino acid and derivatives thereof; amides (*e.g.*, urea); alkanolamides (*e.g.*, lactamide monoethanolamine; acetamide monoethanolamine); and mixtures thereof; preferably polyhydric alcohols, lactic acid and lactate salts, or amides.

Preferred polyhydric alcohols useful herein include, but are not limited to, polyalkylene glycols, more preferably alkylene polyols and their derivatives including glycerin, propylene glycol, dipropylene glycol, tripropylene glycol, polyethylene glycol and derivatives thereof, sorbitol, hydroxypropyl sorbitol, erythritol, threitol, pentaerythritol, xylitol, glucitol, mannitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, glycerol, ethoxylated glycerol, propoxylated

glycerol, sodium 2-pyrrolidone-5-carboxylate, soluble collagen, gelatin, and mixtures thereof. Preferred moisturizing agents are glycerin, 1,3-butylene glycol, glucose, lactic acid, trimethylglycine, urea, or mixtures thereof; more preferably glycerin, trimethylglycine, or urea.

5 The composition of the present invention preferably contains from about 4% to about 15%, more preferably from about 5% to about 9% of the moisturizing agent. Without being bound of the theory, it is believed a higher concentration (*i.e.*, more than about 15%) of the moisturizing agent will result in an undesirably tacky and/or greasy feeling of the skin. It is also believed a lower concentration
10 (*i.e.*, less than about 4%) of the moisturizing agent may result in insufficient moisturization of the skin.

B. Polyoxyalkylene Glycol

The composition of the present invention includes a polyoxyalkylene glycol; preferably a 2 to about 3 carbon-containing polyoxyalkylene glycol.
15 Preferably, the polyoxyalkylene glycol useful herein has an average molecular weight (hereinafter "M.W.") of from about 5,000 to about 500,000, more preferably from about 10,000 to about 300,000. It is believed that the polyoxyalkylene glycol can also provide moisturization of the skin, but without imparting the greasy feeling typically resulting from relatively high levels of
20 moisturizing agent. Consequently, the composition containing these specific polyethylene glycols can decrease the concentration of moisturizing agent, thereby providing a composition having improved moisturization without any greasy feeling of the skin.

Preferably, the polyoxyalkylene glycol useful herein includes
25 polyoxyethylene glycol, polyoxypropylene glycol, block copolymers of polyoxyethylene glycol and polyoxypropylene glycol, and mixtures thereof. A preferred polyoxyalkylene glycol is a combination of two or more polyethylene glycols having a lower average M.W. (*i.e.*, about 20,000) and a higher average M.W. (*e.g.*, from about 150,000 to about 200,000).

30 Preferably, the composition has from about 0.1% to about 3% of polyoxyalkylene glycol; more preferably from about 0.5% to about 1%. It is believed a higher concentration (*i.e.*, more than 3%) of the polyoxyalkylene glycol will result in an undesirably tacky and/or greasy feeling composition. It is also believed a lower concentration of the polyoxyalkylene glycol (*i.e.*, less than about
35 0.1%) may result in insufficient moisturization of the skin.

C. Water-Soluble Polymeric Thickening Agent

The composition of the present invention includes a water-soluble polymeric thickening agent.

Preferably, the water-soluble polymeric thickening agent is present from
5 about 0.0001% to about 0.15%, more preferably from about 0.001% to about 0.1% in the skin care composition.

Without being bound by the theory, It is believed that the water-soluble polymeric thickening agent in combination with the polyethylene glycol can facilitate the spreadability of the composition onto the skin.

10 It is also believed that a higher level (*i.e.*, greater than about 0.15%) of the water-soluble polymeric thickening agent in the composition will result in an undesirably tacky feeling composition. It further is believed a lower concentration of the water soluble polymeric thickening agent (*i.e.*, less than about 0.0001%) may result in insufficient moisturization of the skin.

15 Water-soluble polymeric thickening agents useful herein include polysaccharides, gums, mucopolysaccharides (*e.g.*, hyaluronic acid, chondroitin sulfate), carboxylic acid polymers, crosslinked polyacrylate polymers, and mixtures thereof; preferably polysaccharides, gums, or mixtures thereof.

Extract materials which are derived from natural sources (*e.g.*, Quince
20 Seed) can be included as water-soluble polymeric thickening agent. Quince Seed is available from Taiyo Kagaku (Mie prefecture, Japan).

1. Polysaccharide.

A wide variety of polysaccharides can be used in the composition. Herein, "polysaccharides" refers to thickening agents containing a backbone of repeating
25 sugar (*e.g.*, carbohydrate) units. Nonlimiting examples of useful polysaccharides include those selected from the group consisting of cellulose, carboxymethyl hydroxyethylcellulose, hydroxyethylcellulose, hydroxyethyl ethylcellulose, hydroxypropylcellulose, hydroxypropyl methylcellulose, methyl hydroxyethylcellulose, microcrystalline cellulose, sodium cellulose sulfate, and
30 mixtures thereof; more preferably hydroxypropylcellulose.

In the above examples of useful polysaccharides, the hydroxy groups of the cellulose polymer are preferably hydroxyalkylated (preferably hydroxyethylate or hydroxypropylate), forming a hydroxyalkylated cellulose that is further modified with a straight or branched alkyl group of from about 10 to about 30 carbons
35 through an ether linkage. Preferred polysaccharides are ethers of straight or

branched alcohols of from about 10 to about 30 carbons with hydroxyalkylcelluloses.

Additional examples of useful polysaccharides include alkyl substituted cellulose. Nonlimiting examples of the alkyl groups useful herein include stearyl, isostearyl, lauryl, myristyl, cetyl, isocetyl, cocoyl (e.g., alkyl groups derived from the alcohols of coconut oil), palmityl, oleyl, linoleyl, linolenyl, ricinoleyl, behenyl, and mixtures thereof. Preferred among the alkyl hydroxyalkyl cellulose ethers herein is the material given the CTFA designation cetyl hydroxyethylcellulose, which is the ether of cetyl alcohol and hydroxyethylcellulose. This material is sold under the tradename Natrosol® CS Plus from Aqualon Corporation (Willmington, U.S.A.).

Other polysaccharides useful herein include scleroglucans containing a linear chain of (1 to less than 3) linked glucose units with a (1 to less than 6) linked glucose every three units. A commercially available example of this is Clearogel™ CS11 from Michel Mercier Products Inc. (Mountainside, NJ, U.S. A.).

2. Gum

Other water-soluble polymeric thickening agents which can be employed in the composition of the present invention include materials which are primarily derived from natural sources. Nonlimiting examples of such water-soluble polymeric thickening agents include gums selected from the group consisting of acacia, agar, algin, alginic acid, ammonium alginate, amylopectin, calcium alginate, calcium carrageenan, carnitine, carrageenan, dextrin, gelatin, gellan gum, guar gum, guar hydroxypropyltrimonium chloride, sodium hyaluronate, hydroxypropyl chitosan, hydroxypropyl guar, karaya gum, kelp, locust bean gum, natto gum, potassium alginate, potassium carrageenan, propylene glycol alginate, sclerotium gum, sodium carboxymethyl dextran, sodium carrageenan, tragacanth gum, xanthan gum, and mixtures thereof.

Additional thickening gelling agents which are suitable herein as water-soluble polymeric thickening agents include those disclosed in U.S. Patent No., 4,387,107, to Klein et al., issued June 7, 1983 and "Encyclopedia of Polymer and Thickeners for Cosmetics," R.Y. Lochhead and W. R. Fron, eds., Cosmetics & Toiletries, vol. 108, pp. 95-135 (May 1993).

D. Nonionic Surfactant

The composition of the present invention contains a nonionic surfactant. Without being bound by theory, it is believed the nonionic surfactant facilitates

absorption and/or penetration of any actives (e.g., moisturizing agents, any additional ingredients such as Vitamin C, etc.) into the skin.

Preferably the composition of the present invention contains from about 0.1% to about 2%, more preferably from about 0.2% to about 1% of the nonionic surfactant.

It is believed a higher level (i.e., greater than about 2%) of the nonionic surfactant in the composition will result in providing undesirable tackiness. It is also believed a lower concentration (i.e., less than about 0.1%) of the nonionic surfactant may result in insufficient moisturization of the skin.

Nonionic surfactants useful herein preferably include those that can be broadly defined as condensation products of long chain alcohols, (e.g. alcohols of from about 8 to about 30 carbons), with sugar or starch polymers (e.g., glycosides). These compounds can be represented by the formula $(S)_n-O-R$, wherein S is a sugar moiety such as glucose, fructose, mannose, and galactose; R is an alkyl of from about 8 to about 30 carbons; and n is an integer of from about 1 to about 1,000.

Examples of alcohols having a long carbon chain from which the alkyl can be derived include decyl alcohol, cetyl alcohol, stearyl alcohol, lauryl alcohol, myristyl alcohol, oleyl alcohol, and the like. Preferred nonionic surfactants herein include those wherein S is a glucose moiety; R is an alkyl of from about 8 to about 20 carbons; and n is an integer of from about 1 to about 9. Commercially available examples of these surfactants include decyl polyglucoside, available as APG® 325 CS from Henkel (Ambler, PA, U.S.A.) and lauryl polyglucoside, available as APG® 600 CS and 625 CS from Henkel (Ambler, PA, U.S.A.).

Other nonionic surfactants useful herein include the condensation products of alkylene oxides with fatty acids (e.g., alkylene oxide esters of fatty acids). These materials have the general formula $R^1CO(X^1)_mOH$ wherein R^1 is an alkyl of from about 10 to about 30 carbons; X^1 is $-OCH_2CH_2-$ derived from, for example ethylene glycol or oxide or $-OCH_2CHCH_3-$ derived from, for example propylene glycol or oxide; and m is an integer from about 6 to about 200.

Other useful nonionic surfactants are the condensation products of alkylene oxides with 2 moles of fatty acids (e.g., alkylene oxide diesters of fatty acids). These materials have the general formula $R^2CO(X^2)_pOOCR^2$, wherein R^2 is independently an alkyl of from about 10 to about 30 carbons; X^2 is $-OCH_2CH_2-$ derived from, for example ethylene glycol or oxide or $-OCH_2CHCH_3-$

derived from, for example propylene glycol or oxide; and p is an integer from about 6 to about 100.

Still other nonionic surfactants are the condensation products of alkylene oxides with fatty alcohols (e.g., alkylene oxide ethers of fatty alcohols). These materials have the general formula $R^3(X^3)_qOR^4$ wherein R^3 and R^4 are independently H or alkyl of from about 10 to about 30 carbons; X^3 is $-OCH_2CH_2-$ derived from, for example ethylene glycol or oxide or $-OCH_2CHCH_3-$ derived from, for example propylene glycol or oxide; and q is an integer from about 6 to about 100.

Other nonionic surfactants useful herein are the condensation products of alkylene oxides with both fatty acids and fatty alcohols (e.g., wherein the polyalkylene oxide portion is esterified on one end with a fatty acid and etherified (e.g., connected via an ether linkage) on the other end with a fatty alcohol). These materials have the general formula $R^5CO(X^4)_zOR^6$ wherein R^5 and R^6 are independently alkyl of from about 10 to about 30 carbons; X^4 is $-OCH_2CH_2-$ derived from, for example ethylene glycol or oxide or $-OCH_2CHCH_3-$ derived from propylene glycol or oxide; and z is an integer from about 6 to about 100.

Nonlimiting examples of such alkylene oxide derived nonionic surfactants include ceteth-6, ceteth-10, ceteth-12, cetareth-6, cetareth-10, cetareth-12, cetareth-20, steareth-6, steareth-10, steareth-12, steareth-20, PEG-100 steareth, PEG-6 stearate, PEG-10 stearate, PEG-12 stearate, PEG-100 stearate, PEG-10 glyceryl stearate, PEG-20 glyceryl stearate, PEG-30 glyceryl cocoate, PEG-80 glyceryl cocoate, PEG-80 glyceryl tallowate, PEG-200 glyceryl tallowate, PEG-8 dilaurate, PEG-10 distearate, and mixtures thereof.

Other nonionic surfactants suitable herein include sugar esters and polyesters, alkoxyated sugar esters and polyesters, C1-C30 fatty acid esters of C1-C30 fatty alcohols, alkoxyated derivatives of C1-C30 fatty acid esters of C1-C30 fatty alcohols, alkoxyated ethers of C1-C30 fatty alcohols, polyglyceryl esters of C1-C30 fatty acids, C1-C30 esters of polyols, C1-C30 ethers of polyols, alkyl phosphates, polyoxyalkylene fatty ether phosphates, fatty acid amides, acyl lactylates, and mixtures thereof.

Nonlimiting examples of these nonionic surfactants include: polyethylene glycol 20 sorbitan monolaurate (Polysorbate 20), polyethylene glycol 20 sorbitan monostearate (Polysorbate 60), polyethylene glycol 20 sorbitan monooleate (Polysorbate 80), polyethylene 20 sorbitan trioleate (Polysorbate 85),

polyethylene glycol 5 soya sterol, PPG-2 methyl glucose ether distearate, cetyl phosphate, potassium cetyl phosphate, diethanolamine cetyl phosphate, glyceryl stearate, polyoxyethylene 4 lauryl ether sodium stearate, polyglyceryl-4 isostearate, and mixtures thereof.

5 E. Carrier

The composition of the present invention further contains a water-based carrier. In a preferred embodiment, the carrier also acts as a solvent for one or more of the other components of the composition. Preferably, the carrier is a dermatologically-acceptable carrier; more preferably a cosmetically-acceptable carrier. Preferably, the carrier is a water, alcohol, or mixtures thereof; more preferably water.

In certain embodiment, the carrier includes water in combination with: lower alkyl alcohols, polyhydric alcohols, and mixtures thereof. Lower alkyl alcohols useful herein are C₁-C₆ alkyl monohydric alcohols, preferably C₂-C₃ alkyl alcohols. Preferred lower alkyl alcohols include ethyl alcohol, isopropyl alcohol, and mixtures thereof. Polyhydric alcohols useful herein include propylene glycol, hexylene glycol, glycerin, and propane diol, and mixture thereof.

Preferably the composition of the present invention contains from about 80% to about 95.0% of the carrier.

20 F. Additional Ingredients

The composition of the present invention can further include a wide variety of additional dermatologically-acceptable ingredients. The level and species of the additional ingredients are selected according to the compatibility with other components, and desired characteristic of the composition and/or forms of the composition.

Additional ingredients can include aesthetic agents and active agents. Such additional ingredients useful herein should be physically and chemically compatible with the essential components described herein, and not unduly impair stability, efficacy or other use benefits associated with the skin care composition of the present invention. Additional ingredients may be dispersed, dissolved or the like in any liquid materials described herein which can be employed as a carrier.

A pH adjusting agent can be present as an additional ingredient. The pH adjusting agent tends to prevent decomposition of the ingredients leading to

maximizing product stability. An optimum pH is subject to the selection of the type of the skin care composition. Suitable pH adjusting agents herein include acetate, phosphate, citrate, triethanolamine, lactate, and carbonate, preferably lactate. A combination of foregoing agents may be employed to provide a specific optimized pH for the composition. Preferably, the total level of pH
5 adjusting agent in the composition is from about 0.01% to about 5%, more preferably from about 0.5% to about 2%.

Additional ingredients can further include, for example, ingredients which provide an aesthetic benefit to the composition (such as color, odor, texture, etc.)
10 and/or ingredients which provide additional skin treatment (such as medical treatment effect.) For example, the skin care composition may include absorbents (including oil absorbents such as clays and polymeric absorbents), abrasives, anticaking agents, antifoaming agents, antimicrobial agents (e.g., a compound capable of destroying microbes, preventing the development of
15 microbes or preventing the pathogenic action of microbes and useful, for example, in controlling acne and/or preserving the topical composition such as Irgasan™ DP 300 (Ciba Geigy Corp., U.S.A.) and phenoxyethanol, binders, biological additives, bulking agents, chemical additives, skin care biocides, denaturants, skin care astringents, drug astringents, external analgesics, film
20 formers, fragrances and/or perfumes, colorings, essential oils, skin sensates, emollients, skin soothing agents, skin healing agents, plasticizers, preservatives and preservative enhancers such as water-soluble or solubilizable preservatives (e.g., Germall 115, methyl, ethyl, propyl and butyl esters of hydroxybenzoic acid, benzyl alcohol, EDTA, Bronopol (2-bromo-2-nitropropane-1,3-diol) and
25 phenoxypropanol), propellants, skin-conditioning agents, skin penetration enhancing agents, skin protectants, solvents, solubilizing agents, sunscreens, sunblocks, ultraviolet light absorbers or scattering agents, antioxidants and/or radical scavengers, chelating agents, sequestrants, anti-acne agents, anti-inflammatory agents, anti-androgens, depilation agents, desquamation
30 agents/exfoliants, organic hydroxy acids, vitamins and derivatives thereof (such as vitamin A, vitamin C, vitamin E and vitamin K), compounds which stimulate collagen production, and natural extracts.

Such additional ingredients are known in the art. Examples of such materials are described in Harry's Cosmeticology, 7th Ed., Harry & Wilkinson (Hill
35 Publishers, London 1982); Pharmaceutical Dosage Forms- Disperse Systems;

Lieberman, Rieger & Banker, Vols. 1 (1988) & 2 (1989); Marcel Decker, Inc.; The Chemistry and Manufacture of Cosmetics, 2nd. Ed., deNavarre (Van Nostrand 1962-1965); and The Handbook of Cosmetic Science and Technology, 1st Ed.. Knowlton & Pearch (Elsevier 1993).

5 G. Method for Making Composition

 The compositions of the present invention are generally prepared by any method conventionally used for providing skin care compositions, particularly for skin lotions, that are known in the art. Such methods typically involve mixing of the ingredients in one or more steps to a relatively uniform state, with or without
10 heating, cooling, and the like. Typical methods are described in, for example are described in Harry's Cosmeticology, 7th Ed., Harry & Wilkinson (Hill Publishers, London 1982).

H. Method for Moisturizing Skin

 The compositions of the present invention are useful for moisturizing the
15 skin, particularly for mammalian skin (especially human skin, more especially human facial skin). Moisturization of the skin is obtained by topically applying to the skin a safe and effective amount of the composition of the present invention.

 Although depending on the form and/or type of the composition (such as a clear lotions, milk lotions, gels or essences) a wide range of quantities of the
20 compositions of the present invention can be employed to provide a desirable skin appearance and/or feel benefit. Quantities of the present composition which are typically applied per application are, in mg composition/cm² skin, from about 0.1 mg/cm² to about 10 mg/cm². A particularly useful application amount is about 2 mg/cm².

25 Moisturizing the skin is generally practiced by applying the composition in the form of a skin lotion, cream, skin care, or the like. These are intended to be left on the skin for some aesthetic, prophylactic, therapeutic or other benefit (e.g., a "leave-on" composition). After applying the composition to the skin, it is preferably left on the skin for a period of at least about 15 minutes, more
30 preferably at least about 30 minutes, even more preferably at least about 1 hour, more preferably for at least several hours, e.g., up to about 12 hours.

1. Skin Moisturizer Hydration Test

 The composition of the present invention preferably has a Hydration Factor of from about 5 to about 17; more preferably from about 6.5 to about 15.

Hydration Factor is measured by the Skin Moisturizer Hydration Test (hereinafter, "SMHT").

The SMHT evaluates and compares *in vivo* the hydration efficacy of topical compositions. The method of SMHT utilizes a Corneometer™ 820 PC
5 (supplied by Courage and Khazaka; (Kairn, Germany) to measure the electrical capacitance of the skin surface. Without being limited by theory, it is believed that the electrical capacitance of the skin is an indirect measurement of water presence and therefore skin surface hydration.

The SMHT is determined by at least 16 subjects in general good health
10 (free of medical conditions, adverse reactions or sensitivities which might affect the skin test results). In general, the products to be tested are applied to the forearms of each subject, in an area not having excessive amounts of hair, dermatitis or scars. More specifically, at least two, 3x4 cm², test regions are identified on the volar region of the same forearm.

15 (i) Test Methods:

Electrical capacitance values are taken with the Corneometer at baseline (before product application) and then 2 hours after product application. The Corneometer probe should be wiped clean before each test site reading using a non-linting material such as a Kimwipe™ and zeroed against a dry clean surface
20 to test the integrity of the system.

For each subject, hydration measurements on treated sites will be baseline subtracted. A multi-factor analysis of variance using Fischer's least significant difference analysis should be applied to compare data between products. A comparatively higher Corneometer value reading indicates higher
25 skin surface capacitance and therefore higher skin surface water content or hydration.

EXAMPLES

The following examples further describe and demonstrate embodiments
30 within the scope of the present invention. The examples are given solely for the purpose of illustration and are not to be construed as limitations of the present invention, as many variations thereof are possible without departing from the spirit and scope of the invention. Where applicable, ingredients are identified by chemical or CTFA name, or otherwise defined below.

Examples 1-5

Examples 1 - 5 of the composition of the present invention are prepared from the following ingredients by the formulating techniques set forth below.

Phase	Ingredient	1	2	3	4	5
A	water	80.000	80.000	80.000	80.000	85.000
A	glycerine	2.000	2.000	2.000	2.000	2.000
B	PEG-5M ¹	0.100	-	-	0.100	-
B	PEG-350 ²	0.500	0.500	0.500	0.500	0.500
B	urea	-	-	-	3.000	-
B	trimethyl glycine	-	0.500	-	-	-
C	water	2.000	2.000	2.000	2.000	-
C	1,3-butylene glycol	6.000	6.000	6.000	6.000	6.000
C	methylparaben	0.240	0.240	0.240	0.240	0.240
C	sorbic acid	0.050	0.050	0.050	0.050	0.050
C	lactic acid	-	-	0.010	-	-
C	sodium lactate	-	-	0.150	-	-
D	water	2.000	2.000	2.000	2.000	2.000
D	Tween 20 ³	0.800	0.800	0.800	0.800	0.800
D	phenoxyethanol	0.200	0.200	0.200	0.200	0.200
D	Tween 60 ⁴		0.500	-	-	-
D	octylmethoxy cinnamate	-	-	-	0.100	-
E	Na-benzoate	0.205	0.205	0.205	0.205	0.205
E	EDTA-2Na	0.100	0.100	0.100	0.100	0.100
F	Quince Seed ⁵	0.003	0.003	0.003	0.003	-
F	sodium hyaluronate	-	0.040	-	0.040	0.040
F	water	up to 100				

5 ¹ PEG-5M: polyethylene glycol having H(OCH₂CH₂)_nOH, n (average) = 5000

² PEG-350: polyethylene glycol having H(OCH₂CH₂)_nOH, n (average) = 350

³ Tween 20: polyethylene glycol 20 sorbitan monolaurate named Polysorbate 20 in CTFA

⁴ Tween 60: polyethylene glycol 60 sorbitan monostearate named
10 Polysorbate 60 in CTFA

⁵ Quince Seed: Quince Extra, powder of dried seeds of Cydonia oblonga

For Examples 1 through 5, the cosmetic compositions are made as follows:

- (a) Mix (using propeller type mixer) Phase A ingredients in a suitably size vessel and heat to about 70-75°C.
- 5 (b) Add Phase B ingredients to Phase A and mix at about 70-75°C until the Phase B ingredients melt completely.
- (c) Cool the batch mixture of A-B to about 60°C.
- (d) Separately, mix Phase C ingredients at about 60°C until uniform and add to the batch mixture of phases A-B until uniform.
- 10 (e) Separately, mix Phase D ingredients until uniform and then add to the batch mixture of phases A-C at about 60°C while continuing to mix.
- (f) Cool to 50°C of the batch mixture of phases A-D
- (g) Add Phase E ingredients to the batch mixture of phases A-D while continuing to mix.
- 15 (h) Separately, mix Phase F ingredients until solve completely and add to the batch mixture of phases A-E and continue to cool to about 35°C
- (i) Mixing is continued until the resulting batch mixture is uniform.

Skin Hydration by Corneometer

	Ex. 1	Ex.2	Ex.3	Ex.4	Ex.5
After 2 hours	8.60	8.00	9.20	13.92	7.00

Examples 6-7

Examples 6 - 7 of composition of the present invention are prepared from the following ingredients by the formulating techniques set forth below.

Phase	Ingredient	6	7
A	water	80.000	80.000
A	glycerine	2.000	2.000
B	PEG-5M ¹	0.500	0.500
B	PEG-350 ²	-	0.100
B	urea	-	-
B	trimethyl glycine	3.000	3.000
C	water	2.000	2.000
C	1,3-butylene glycol	6.000	6.000
C	methylparaben	0.240	0.240
C	sorbic acid	0.050	0.050
D	water	2.000	2.000
D	Tween 20 ³	0.800	0.800
D	phenoxyethanol	0.200	0.200
E	Na-benzoate	0.205	0.205
E	EDTA-2Na	0.100	0.100
F	Quince Seed ⁴	-	0.003
F	carbomer ⁵	0.300	0.300
F	water	1.000	1.000
G	sodium hydroxide	0.003	0.003
G	water	up to 100	

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¹ PEG-5M: polyethylene glycol having $H(OCH_2CH_2)_nOH$, n (average) = 5000

² PEG-350: polyethylene glycol having $H(OCH_2CH_2)_nOH$, n (average) = 350

³ Tween 20: polyethylene glycol 20 sorbitan monolaurate as CTFA named Polysorbate 20

10 ⁴ Quince Seed: Quince Extra, powder of dried seeds of Cydonia oblonga

⁵ Carbomer™(Ohio, U.S.A.): homopolymer of acrylic acid crosslinked with allyl ether of pentaerythritol or sucrose propylene

For Examples 6 through 7, the compositions above described are made as follows:

- (a) Mix (using propeller type mixer) Phase A ingredients in a suitably sized vessel and heat to about 70-75°C.
- 5 (b) Add Phase B ingredients to Phase A and mix at about 70-75°C until the Phase B ingredients melt completely.
- (c) Cool the batch mixture of A-B to about 60°C.
- (d) Separately, mix Phase C ingredients at about 60°C until uniform and add to the batch mixture of phases A-B until uniform.
- 10 (e) Separately, mix Phase D ingredients until uniform and then add to the batch mixture of phases A-C at about 60°C while continuing to mix.
- (f) Cool to 50°C of the batch mixture of phases A-D
- (g) Add Phase E ingredients to the batch mixture of phases A-D while continuing to mix.
- 15 (h) Separately, mix Phase F ingredients until dissolved completely and add to the batch mixture of phases A-E and continue to cool to about 35°C
- (i) Separately, mix Phase G ingredients until dissolved completely and add to the batch mixture of phases A-F until Phase G causes neutralization of the mixture.
- 20 (j) Mixing is continued until the resulting batch mixture is uniform.

Skin Hydration by Corneometer™

	Ex.6	Ex.7
After 2 hours	9.34	11.00

- The embodiments disclosed and represented by the previous examples
- 25 have many advantages. For example, they can provide improved moisturization of the skin without imparting a greasy feeling and/or provide good spreadability during use. It is believed high levels of the moisturizing agent contributes to a greasy feeling. However, it is further believed the polyoxyethylene glycol also provides significant moisturization, without imparting a greasy feeling.
- 30 Consequently, by including polyoxyethylene glycol in the composition, the levels of the moisturizing agent versus known compositions can be reduced, yet similar or improved moisturization can be obtained while also providing a non-greasy feeling.

By including polyoxyethylene glycol in the composition, the composition tends to undesirably reduce the spreadability of the composition. The water-soluble polymeric thickening agent is generally believed to have spreadability itself. The combination of water-soluble polymeric thickening agent and the polyoxyethylene glycol improves overall spreadability of the composition to the skin. Consequently, the improved spreadability can be achieved by combining the water-soluble polymeric thickening agent with the polyoxyethylene glycol.

It is understood that the foregoing detailed description of examples and embodiments of the present invention are given merely by way of illustration, and that numerous modifications and variations may become apparent to those skilled in the art without departing from the spirit and scope of the invention; and such apparent modifications and variations are to be included in the scope of the appended claims.

What is claimed is:

1. A skin care composition comprising:
 - (a) a moisturizing agent;
 - (b) a polyoxyalkylene glycol of 2 to about 3 carbons having an average molecular weight of from about 5,000 to about 500,000;
 - 5 (c) a water-soluble polymeric thickening agent;
 - (d) a nonionic surfactant; and
 - (e) a carrier,wherein the total amount of surfactant in the composition is less than 5% of the composition.
- 10 2. The skin care composition of Claim 1 wherein the composition comprises:
 - (a) from about 4% to about 15% of the moisturizing agent,
 - (b) from about 0.1% to about 3% of the polyoxyalkylene glycol;
 - 5 (c) from about 0.0001% to about 0.15% of the water-soluble polymeric thickening agent;
 - (d) from about 0.1% to about 2% of the nonionic surfactant; and
 - (e) from about 80% to about 95% of the carrier, and wherein the carrier includes water.
3. The skin care composition of Claim 2 wherein the moisturizing agent is glycerin, 1,3-butylene glycol, lactic acid, glucose, amino acid, urea, or mixtures thereof.
4. The skin care composition of Claim 2 wherein the water-soluble polymeric thickening agent is hydroxypropylcellulose, xanthan gum, quince seed, hyaluronic acid, or mixtures thereof.
5. The skin care composition of Claim 2 wherein the nonionic surfactant is Polysorbate 20, Polysorbate 60, Polysorbate 80, PEG-100 steareth, or mixtures thereof.
6. The skin care composition of Claim 2 wherein the polyoxyalkylene glycol has a molecular weight of from about 10,000 to about 300,000.

7. The skin care composition of Claim 6 wherein the polyoxyalkylene glycol is polyethylene glycol.
8. A method for moisturizing mammalian skin comprising topically applying the skin care composition of any one of Claims 1 to 7 to the skin.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/06243

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61K7/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 33489 A (ALLERGAN) 14 December 1995 see claim 16; tables 2,3 ---	1,6-8
X	DE 19 48 990 A (KOLMAR LABORATORIES) 27 May 1970 see example 4 ---	1,6,7
A	WO 92 19216 A (PROCTER & GAMBLE) 12 November 1992 see the whole document ---	1-8
A	WO 93 16678 A (WELLA) 2 September 1993 see claims 1-4; examples 1,2 ---	1-8
A	FR 2 649 718 A (INTERNATIONAL RESEARCH AND DEVELOPMENT CORPORATION) 18 January 1991 see the whole document ---	1-8
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Information on patent family members

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